

Strengthening Scientific Integrity: Recommendations to the USGS Director

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Presidential Memoranda on Scientific Integrity

Secretary Haaland, in her first address to Department of the Interior (DOI) staff, stressed the importance of scientific integrity by stating that “I will ensure that the Department’s decisions are made with the utmost scientific integrity....” Her words reinforce the Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking of January 27, 2021. This memo references, reaffirms, and builds upon the Presidential Memorandum of March 9, 2009, and the Office of Science and Technology Policy (OSTP) Memorandum of December 17, 2010

(“OSTP Memo”). The OSTP Memo calls upon Heads of Executive Departments and Agencies to address:

1) Foundations of Scientific Integrity in Government, 2) Public Communications, 3) Use of Federal Advisory Committees, and 4) Professional Development of Government Scientists and Engineers. Efforts to comply with the OSTP Memo have been challenged in recent years by restrictive communications policies, negative actions by political appointees, and constrained scientific integrity budgets. Recommendations herein will address the key areas in the OSTP Memo as well as related areas specific to the USGS.

OSTP Memo Key Areas			
Foundations of Scientific Integrity	Public Communications	Federal Advisory Committees	Professional Development

The USGS and then the Department of the Interior became the first organizations in the Federal government to develop comprehensive scientific integrity policies¹. We want to continue to be leaders in the Federal scientific integrity space, and strengthening our policies, practices and approaches will help keep us at the forefront.

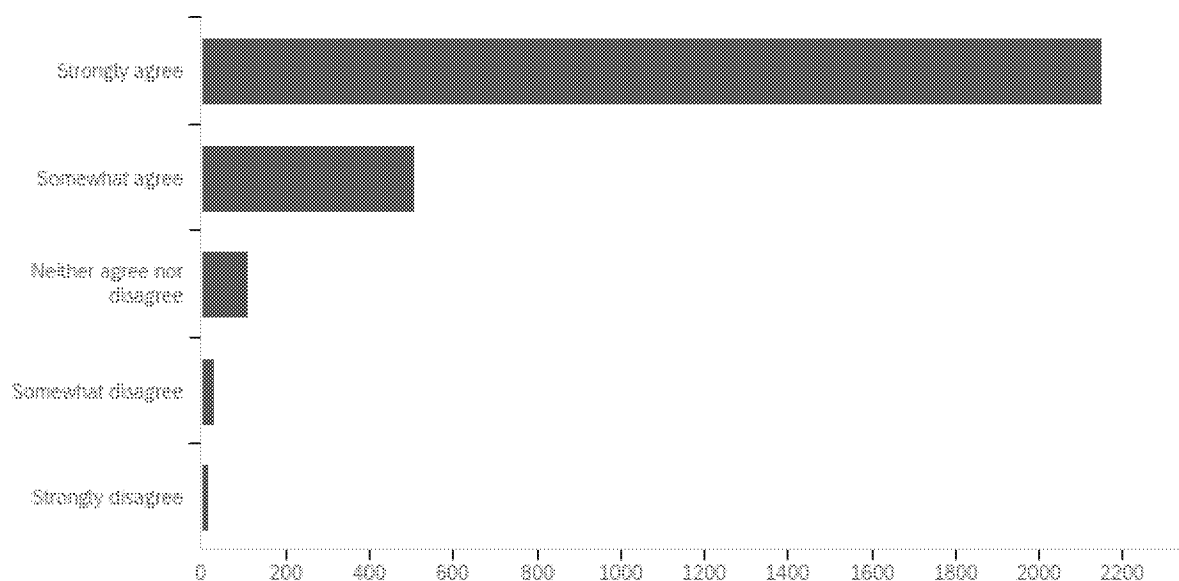
¹ DOI Scientific Integrity Procedures Handbook, DOI Scientific Integrity Policy, and USGS Scientific Integrity Policy

Starting from a Position of Strength

In response to the GAO report *Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research* (GAO-19-265), the USGS Office of Science Quality and Integrity (OSQI) conducted a scientific integrity survey in fall 2020. The survey, the first of a planned series of biennial surveys to all USGS employees, is only one mechanism to monitor and evaluate the implementation of the USGS scientific integrity program and to provide recommendations for continued improvements. A total of 2,833 USGS employees from across the USGS responded to the survey².

Scientific integrity remains strong at the USGS. In a question of whether there is a culture of scientific integrity at the USGS, 94.5% of respondents strongly agreed or agreed, 3.9% were neutral, and 1.6% disagreed (see question #34 results).

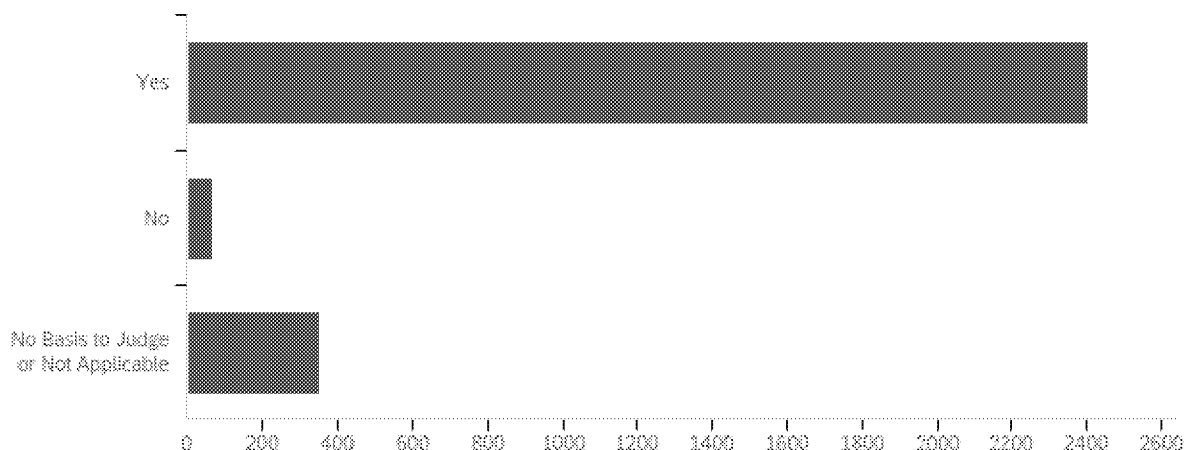
Q34 - There is a culture of scientific integrity at the USGS:



When asked about the communication of results of scientific activities and the support of your work unit, 97.4% of those able to judge, as some respondents were not in science positions, said “yes” that their work unit supports their efforts to be clear, honest, objective, thorough, accurate and timely (see question 18 results).

² A separate *2020 Scientific Integrity Survey Report* by the USGS Office of Science Quality and Integrity provides detailed results from the survey.

Q18 - When communicating the results of scientific activities, does your work unit support your efforts to be "clear, honest, objective, thorough, accurate, and timely"?



From the *2020 Scientific Integrity Survey Report*, we found that within their work units, respondents overwhelmingly demonstrated satisfaction with certain key concepts of the DOI Code of Scientific and Scholarly Conduct:

- 95% agreed quality assurance and quality control standards are adhered to;
- 95% agreed employees are open and transparent about methods and data, including how faulty data are omitted when communicating results of scientific activities;
- 94% agreed peer review at the USGS is designed to improve technical merit of the work;
- 94% agreed the communication of scientific results is free of personal opinions and assumptions; and
- 93% agreed authorship guidelines are followed and credit is given to others for their ideas and work.

Expanded authorship guidelines, to be a part of Fundamental Science Practices policies, are planned for release over the next few weeks.

Strengthening USGS Scientific Integrity			
Avoidance of Political Interference	Interactions Between Scientists and the Press	A Culture of Science Quality and Integrity	Professional Development and Advancement of Scientists

Recommendations

In reviewing the structures of other Federal science quality and scientific integrity programs³, an OSTP review of scientific integrity policies⁴, the OSTP Memo, Presidential Memoranda, and the recent USGS survey results on scientific integrity, the following items are recommended by the Director, Office of Science Quality and Integrity to strengthen scientific integrity at the USGS:

Avoidance of Political Interference

1. Develop a statement of policy in the Survey Manual **prohibiting political interference** in the planning, execution, supervision, management, or communication of scientific activities, including as this relates to USGS scientific findings and science information products. Charge the ELT with the responsibility for upholding this prohibition, provide mechanisms to express concerns, and protections for those who do.
2. Further strengthen Fundamental Science Practices to eliminate the potential for future political interference in **suppressing or altering science** information products.
3. Reinforce Fundamental Science Practices and Bureau policy that **Bureau Approving Officials**, who are career scientists in the Office of Science Quality and Integrity, are appointed by the Director of that Office, also a career scientist, without approval or interference by political appointees.

³ See, for example, CDC - Offices of Science Quality and Scientific Integrity, HHS Office of Research Integrity, EPA OSAPE Office

⁴ Review of Federal Agency Policies on Scientific Integrity, STPI (2016)

4. Reinforce that Fundamental Science Practices, including the review of science information products, applies to all at the USGS, including the USGS Director, and set in policy the process for **peer review of science information products authored or presented by the USGS Director**.
5. Educate staff at all levels that a **violation of Fundamental Science Practices policy** may also be considered a loss of scientific integrity.
6. Ensure, by policy and action, that the **Bureau Scientific Integrity Officer (BSIO) is a career scientist within the Office of Science Quality and Integrity** and that the Director, Office of Science Quality and Integrity is responsible for ensuring the independence of the BSIO from any political interference.
7. Develop processes that ensure that the **selection of individuals overseeing science and scientists**, when selected by a political appointee, is open, fair and transparent.
8. Consider **chartering a Federal Advisory Committee (FAC)** to advise on policies and practices related to science quality and integrity, including a subcommittee on laboratories – given the importance of ensuring the quality and integrity of laboratory data at the USGS.
9. Memberships on existing and this proposed FAC should be selected upon **appropriate merit- and expertise-based criteria**, and draft FACA reports should not be reviewed by political appointees.

Interactions Between Scientists and the Press

10. Ensure that scientists at the USGS **may speak to the press about their own work or their area of expertise**. If current policies from the last administration are retained requiring scientists to obtain prior approval (see the box on “Heading for Red”) before speaking with a reporter, ensure that a timely dispute resolution process exists and that results from that process are documented and tracked.
11. Establish a **right of scientific review for press releases** that rely primarily and significantly on a scientists' work. Protections through Fundamental Science Practices already ensure the engagement of scientists in the final versions of their science information products.
12. Articulate clearly in policies that **scientists may express personal opinions to the public if the opinions clearly represent personal, rather than official, positions**.

13. Develop a written policy to clarify the **role of political appointees in the communication of scientific findings and press releases.**



HEADING FOR RED

The USGS and DOI appear on-track for a “red” score in the Scientific Integrity scorecard ratings by the Union of Concerned Scientists for “media policy” and communication by scientists (see [UCS Scorecard](#)). Obama-era and earlier policies permitted scientists to talk with the press after appropriately notifying public affairs officials. The last administration changed this to require **approval** before talking to the press, leading to allegations of suppression of science and scientists. Delayed responses to requests until after deadlines had passed led to additional claims of censorship. This policy change, if not reversed soon, will affect the evaluation of scientific integrity at the Department and potentially may lead to scientific integrity complaints being brought against public affairs staff. Moreover, it fails to live up to the intent of the *Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking* to allow for transparency and openness in government science.

A Culture of Science Quality and Integrity

14. Ask the **Chief Scientist, or other designee at the Bureau level, to oversee follow-up actions** from any issues uncovered during a scientific integrity investigation.
15. **A Science Quality Officer and associated science staff are needed** to follow up on inquiries to the Office of Science Quality and Integrity regarding science quality issues that do not rise to the level of a loss of scientific integrity. Science quality staff should track quality issues until resolved so that they do not become scientific integrity issues and look for underlying causes of trends regarding science quality. Policies to support the Science Quality Officer’s work should be developed in the Survey Manual.
16. Strengthen expectations and protections in written policy and through actions regarding any **retaliation against complainants or witnesses in scientific integrity cases** – due to their participation as part of the scientific integrity process or their reporting of a scientific integrity concern.
17. **Recognize scientists** who contribute to science quality through performing peer reviews and/or serving as Research Grade Evaluation (RGE) and Equipment

Development Grade Evaluation (EDGE) panelists. Encourage Center Directors to recognize staff who serve frequently as peer reviewers and also have the USGS Director annually recognize (e.g. with a letter to center directors) RGE/EDGE panelists.

18. To improve **data quality and consistency**, consider ways to improve science data entry so that those data can be entered one-time from fieldwork and followed all the way through to public data release.
19. Set expectations through Fundamental Science Practices policy for **data quality in posted USGS data sets and in the timely correction of any data errors**. On occasion, external inquiries regarding the quality or integrity of posted data are not adequately addressed by the USGS organization serving the data to the public.

Professional Development and Advancement of Scientists

20. **Encourage scientific and technical staff to participate and engage** with the broader scientific, tribal, and STEM education communities, including schools. These opportunities include making use of:
 - a. Brookings LEGIS Congressional Fellowships,
 - b. Embassy Science Fellows,
 - c. Presidential Management Council rotations,
 - d. Co-location opportunities with educational institutions, including tribal colleges,
 - e. Reimbursable details to other science agencies,
 - f. Increased use of the Intergovernmental Personnel Act to leverage university and tribal staff to and from the USGS, and
 - g. Time to engage with schools and diversity pipeline partners (Hispanic Serving Institutions – CCNY and UPR Mayagüez, an HBCU – Tennessee State University, and the planned addition of a tribal college) to expand the use of USGS science and to continue to develop a diverse future USGS workforce.
21. **Presentations and attendance at science conferences** should be encouraged and adequately funded.

22. Work with other agencies to have the OPM Equipment Development Grade Evaluations (EDGE) Guide **updated**. The manual was last updated in 53 years ago, is difficult to apply to computer scientists, and makes it challenging to reach the GS-15 level and ST ranks.
23. Encourage center directors and supervisors to **nominate USGS scientific and technical staff** for appropriate internal and external awards.
24. Develop a **pathway for science technicians** to advance their education and training to become USGS scientists. Consider ways for **non-RGE scientists** to better advance in their careers.
25. Encourage scientists to **perform outreach and take opportunities to engage young people from underserved and underrepresented communities, including tribal communities**, to build the next generation of USGS scientists.

Execution and Timeframes

In addition to the recommendations contained within this report, the USGS policy on scientific integrity needs to be updated. By September 30, 2021, the Office of Science Quality and Integrity should update the USGS Scientific Integrity policy to reflect changes since 2015 and ensure review by the entire ELT. This chapter will also need to later be revised as OSTP guidance and DOI policies are updated.

For all other matters, the Office of Science Quality and Integrity will work to implement the recommendations as determined and selected by the USGS Director.